

REMARKS

The Office action mailed on 21 April 2004 (Paper No. 7) has been carefully considered.

Claims 1, 2, 5, 8, 10, 13 and 15 are being amended. Thus, claims 1 thru 20 are pending in the application.

In paragraph 2 of the Office action, the Examiner rejected claims 1, 2 and 13 thru 15 under 35 U.S.C. §103 for alleged unpatentability over Shibata, Japanese Patent Publication No. 06-034946 in view of Lee, U.S. Patent No. 5,818,172. In paragraph 3 of the Office action, the Examiner rejected claims 5 and 12 under 35 U.S.C. §103 for alleged unpatentability over Shibata '946 and Lee '172 in view of Koenck *et al.*, U.S. Patent No. 5,818,553. In paragraph 4 of the Office action, the Examiner rejected claims 3, 6 thru 11, 16, 18 and 19 under 35 U.S.C. §103 for alleged unpatentability over Shibata '946, Lee '172 and Koenck *et al.*'553 in view of Helms, U.S. Patent No. 5,952,992. In paragraph 5 of the Office action, the Examiner rejected claims 4, 17 and 20 under 35 U.S.C. §103 for alleged unpatentability over Shibata '946, Lee '172, Koenck *et al.*'553 and Helms '992 in view of Saito *et al.*, U.S. Patent No. 5,315,695. For the reasons stated below, it is submitted that the invention recited in the claims, as now amended, is distinguishable from the prior art cited by the Examiner so as to preclude rejection under 35 U.S.C. §102 or §103.

It is respectfully submitted that invention recited in independent claims 1 and 13 is distinguishable from the prior art cited by the Examiner so as to preclude rejection under 35 U.S.C. §103. In that regard, the Examiner alleges that Shibata '946 "teaches a system for providing backlight brightness control based on a contrast sensing part (automatic modulated light circuit, paragraph 0014) for sensing contrast of a video signal displayed on an LCD panel" (quoting from page 2, lines 13-15 of the Office action). However, paragraph 0014 of Shibata '946 does not support the Examiner's allegation.

Specifically, paragraph 0014 of Shibata '946 merely states that, since "the above-mentioned signal level decodes a color tone indicative data and is formed, it can judge about the thing corresponding to which gradation the average of the whole screen is by calculating the data corresponding to .. arithmetically and calculating the average" (quoting from the first three lines of paragraph 0014 of the reference). The cited paragraph then states that "[an] automatic modulated light circuit performs such an easy operation, and forms the above intensity-control signals" (quoting from paragraph 0014, lines 3-4 of Shibata '946). Finally, the cited reference states that "above averages prepare the easy D.A-conversion circuit besides what is performed by the digital arithmetic circuit" (quoting from paragraph 0014, lines 5-6 of Shibata '946).

At no point in paragraph 0014 of Shibata '946 is there any mention of a "contrast sensing part" as recited in the claims of the present application. Moreover, there is no mention whatsoever in the cited paragraph of Shibata '946 of the performance of any contrast sensing function by the "automatic modulated light circuit" referred to by the Examiner at page 2, line 14 of the Office action. Therefore, it cannot be said that Shibata '946 discloses a contrast sensing part for sensing contrast of a video signal displayed on an LCD panel and outputting a signal as a result thereof. Furthermore, it should be noted that independent claims 1 and 13 expressly recite that the contrast sensing part senses the contrast of a video signal displayed on an LCD panel and outputs "a pulse width modulation (PWM) signal" (quoting from claim 1, line 8 and claim 13, line 6 of the present application).

In fact, the Examiner admits that Shibata '946 does not teach that the contrast sensing part outputs a PWM signal (*see* page 2, line 18 of the Office action). It is respectfully submitted that the reason that Shibata '946 does not disclose the outputting of a PWM signal resides in the fact that the automatic modulated light circuit of Shibata '946 is not a contrast sensing part. In the latter regard, it is requested that the Examiner consider the following.

The automatic modulated light circuit described in Shibata '946 is different from the contrast sensing part recited in the claims because they operate by different respective methods.

Specifically, the automatic modulated light circuit of Shibata '946 decreases the brightness of backlight when a gradation is high, and increases the brightness of backlight when a gradation is low.

In contrast, the claimed contrast sensing part senses each sectioned contrast of the monitor. For example, when only a partial section in the frame of a monochrome monitor is white and most is black, the subject invention decreases the brightness of the backlight by a small amount so as to save power since, in this case, the decrease in brightness of the backlight is not easily recognized visually. On the other hand, when most of section in the frame of the monitor is white, the brightness of the backlight is maintained at a predetermined brightness since, in this case, a change in the brightness of the backlight would be easily recognized visually.

The latter analysis, and thus the operation of the contrast sensing part of the invention, are based on the concept that a difference in contrast affects the degree of visual sensing of the brightness change with respect to the backlight. Furthermore, the function of the claimed contrast sensing part can also be applied to a color monitor

having various degrees of saturation classified by light and dark colors except for a monochrome monitor.

To summarize, the claimed contrast sensing part operates according to the saturation of color and the area ratio in the frame of the monitor. Thus, the alleged correspondence between the automatic modulated light circuit of Shibata '946 and the contrast sensing part of the claimed invention, as set forth by the Examiner, is not valid because the respective sensed data and the respective sensing methods in each are different.

In addition, it should be noted that the subject invention as recited in claim 1 further comprises a voltage controller for adjusting the direct current (DC) from the DC converter so as to operate the inverter in the personal computer (PC). In the latter regard, in the Office action, the Examiner further admits that Shibata '946 does not disclose a system which includes a DC/AC inverter, a DC converter, a voltage controller, or a controller (*see* page 2, lines 19-20 of the Office action). Thus, by virtue of the Examiner's admission, it is clear that a major portion (if not all) of the elements of the computer system recited in claims 1 and 13 of the present application is/are not disclosed or suggested in Shibata '946. Accordingly, this renders Shibata '946 a very poor and ineffective citation as a primary reference against claims 1 and 13. In fact, based on the argument set forth above relative to the lack of disclosure of a contrast sensing part in

Shibata '946, it can be concluded that Shibata '946 (the primary reference cited against claims 1 and 13) does not disclose any element of the system recited in those claims, and does not disclose the generation of a PWM signal by a contrast sensing part, as well as the conversion of that PWM signal into a DC signal by a DC converter, as recited in the claims.

In order to supplement the very general and ineffective disclosure of Shibata '946, the Examiner cites Lee '172. The Examiner contends that Lee '172 discloses "a DC converter 2 for converting a PWM signal into a DC signal" (quoting from page 2, lines 22-23 of the Office action). However, as indicated at column 4, lines 52-55 of Lee '172, the DC/DC converter 2 of Figure 3 of the cited patent receives a direct current (DC) input, not a PWM signal, and converts the DC input into a switching signal using a switching regulator. The switching signal generated by the converter 2 is obviously a DC signal, which is provided directly to a DC/AC inverter 3, and is not provided to a voltage controller, as recited in the claims. Thus, it is incorrect to state that the converter 2 of Figure 3 of Lee '172 converts a PWM signal into a DC signal, as recited in the claims, since it is clear that the DC/DC converter 2 of Figure 3 of Lee '172 merely converts a DC input into a DC switching signal.

In the Office action, the Examiner also alleges that the voltage controller 7 of Figure 3 of Lee '172 corresponds to the recited voltage controller since "voltage

controller 7 [is] provided between the DC converter 2 and the DC/AC inverter 3 for providing the DC converter signal to an operating voltage of the inverter 3” (quoting from the sentence bridging pages 2 and 3 of the Office action). Applicant respectfully disagrees with this analysis by the Examiner.

Specifically, the feedback unit 7 of Lee ‘172, which the Examiner asserts as corresponding to the recited “voltage controller”, does not provide an output signal from the converter 2 to the inverter 3 of Lee ‘172. This is clear from Figure 3, which shows only one connection between feedback unit 7 and DC/DC converter 2, and that connection is an output of the feedback unit 7 provided to the input of converter 2, rather than a converter output from converter 2 provided to the feedback unit 7. In addition, Figure 3 also makes it clear that the feedback unit 7 does not provide any signal, directly or indirectly, to the inverter 3. Rather, Figure 3 shows an output of the inverter 3 provided, via brightness controller 6, as an input to the feedback unit 7.

This distinction between the feedback unit 7 of Figure 3 of Lee ‘172 and the voltage controller recited in claims 1 and 13 is being emphasized by amendment of claims 1 and 3 so as to recite that the voltage controller or voltage controller means is provided between an output of the DC converter and an input of the DC/AC inverter for providing the DC signal from the DC converter as an operating voltage to the DC/AC inverter.

On page 3 of the Office action, the Examiner states that it would have been obvious to combine the teachings of Shibata '946 and Lee '172 because, according to the Examiner, "Shibata teaches a back light control system which includes the use of a contrast sensing part that controls the brightness/darkness ... of a back light (paragraph 0016)" (quoting from page 3, lines 7-9 of the Office action). However, as stated above, a careful review of paragraph 0016 of Shibata '946 fails to reveal any mention of "contrast sensing" or a "contrast sensing part". In fact, the cited paragraph merely refers to "brightness" and "bright color tone", and does not mention "contrast" at all, much less a contrast sensing part. Therefore, a serious question is raised as to the validity of the combination of references cited under 35 U.S.C. §103 since one of ordinary skill in the art, upon reviewing Shibata '946, would not be motivated or instructed to seek and incorporate the disclosure of Lee '172 or any of the cited references. This is especially true since, as stated above, Shibata '946 not only does not mention "contrast sensing", but Shibata '946 also does not disclose any of the elements recited in claims 1 and 13, and also does not disclose the PWM signal generated by the contrast sensing part as recited in claims 1 and 13. Finally, even if the combination of Shibata '946 and Lee '172 were a proper combination of references under 35 U.S.C. §103, as stated above, the combination of these references still fails to disclose or suggest each of the elements and functions of the systems recited in claims 1 and 13, respectively.

Turning to consideration of independent method claim 5, and the rejection set forth by the Examiner in paragraph 3 of the Office action, for many of the same reasons set forth above relative to claims 1 and 13, the method of claim 5 is not disclosed or suggested in the references cited by the Examiner. In particular, again, Shibata '946 does not mention "contrast sensing" or a "contrast sensing part", and there is no disclosure which leads one to believe that the automatic modulated light circuit discussed in paragraph 0014 of Shibata '946 performs a contrast sensing function. Thus, the statement contained in the sentence bridging pages 3 and 4 of the Office action is, it is respectfully submitted, in error. For the reasons stated above relative to claims 1 and 13, the sentence appearing at page 4, lines 2-3 of the Office action is also in error since paragraph 0016 of Shibata '946 does not disclose or suggest a contrast sensing part which controls brightness/darkness of back light.

On page 4 of the Office action, the Examiner also admits that the method recited in claim 5 contains various steps, none of which is included in the disclosure of Shibata '946. As was the case with respect to claims 1 and 13, the citation of Shibata '946 as a primary reference against method claim 5 is very questionable since, by the Examiner's own admission (at page 4, lines 5-8) of the Office action, Shibata '946 does not disclose a method which specifically includes any of the steps recited in claim 5.


As was the case with respect to claims 1 and 13, the Examiner cites Lee '172 for allegedly disclosing "a DC converter 2 for converting a PWM signal into a DC signal", and "a voltage controller 7 provided between the DC converter 2 and the DC/AC inverter 3 for providing the DC converter signal as an operating voltage of the inverter 3" (quoting from page 4, lines 14-17 of the Office action). As argued above relative to independent claims 1 and 13, Lee '172 does not provide a converter for converting a PWM signal into a DC signal, but rather provides a converter 2 for converting a DC signal to a DC switching signal (*see* column 4, lines 52-55 of Lee '172). Furthermore, as also argued above, Figure 3 of Lee '172 makes it clear that the feedback unit 7 does not provide a signal from converter 2, either directly or indirectly, to the inverter 3 since the flow of signals between converter 2 and inverter 3 via feedback unit 7 is from inverter 3 to the converter2.

For the above reasons, it is submitted that independent claims 1, 5 and 13 recite the inventive system and method in a manner distinguishable from the prior art so as to preclude rejection under 35 U.S.C. §103. Moreover, the dependent claims provide further bases for distinguishing the invention from the prior art cited by the Examiner.

In view of the above, it is submitted that the claims of this application are in condition for allowance, and early issuance thereof is solicited. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's attorney.

No fee is incurred by this Amendment.

Respectfully submitted,


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